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A FOUNDATION LOOKS AT COLLEGE TEACHING BY TELEVISION

Alvin C. Eurich

Any foundation concerned with the advancement of education has, contrary to popular conception, administrative problems similar to those of any other social organization. It has limited funds, and must decide how these funds can best be used to accomplish the purposes for which it was established. Also, a foundation presumably has available risk capital which public funds often cannot provide.

Such a foundation must therefore ask: what are the major problems for which its funds might be used to improve education; and further, to which of these problems should high priority be given? Ideally, it should try to support developments which are not likely to be supported in any other way.

At the college level perhaps the most critical problem is the growing teacher shortage. This is steadily worsening, as our college population increases. Although in recent years the number of doctorate degree graduates has risen sharply, a steadily smaller percentage of these Ph.D.'s are entering teaching. In the last three years the percent of newly employed college faculty members with Ph.D. degrees has dropped from 31% to 23%, while in that same time the percentage with less than master's degrees has risen from 18% to 23%. This is in striking contrast to the academic preparation of the total college faculty in 1953-54, when over 40% held Ph.D. degrees, and only 10% had less than a master's degree. It represents a drastic deterioration in the quality of preparation of new college faculty members in a very short period of time.

College and university administrators, faced with pressing financial problems and rising enrollments, have tried to meet the faculty shortage by raising salaries, and have been forced to meet it by compromising with quality. Although the average faculty salary in institutions of higher learning is now \$6120, a 40% rise since 1947,

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this represents little progress in relation to the cost of living and other professional incomes. The fact that 761 institutions reported a total of 1,196 unfilled positions in 1955-56 and 1956-57 underlines the fact that the teacher shortage cannot be solved by traditional methods.

The situation is complicated because it takes many years to educate the competent college teacher, and because the demands of other fields for highly trained personnel are such that the total supply of our college graduates is insufficient to provide enough new faculty members to carry on "as usual."

Public concern with finding enough teachers for our colleges to continue their usual practices, even while the quality of personnel steadily declines, reminds me of the statement by the late Charles Johnson, President of Fisk University, when he said: "By maintaining small classes during this period, college merely makes it possible to transmit the mediocrity of the teacher in an intimate environment."

The evident deterioration of quality leads one readily to an urgent wish to see that our very best teachers are used more extensively than before in meeting a larger number of students. Since education is basically the transmission of the accumulated knowledge and wisdom of the human race to successive generations, every means of communication must be considered.

Television is one such tool, our newest mass mode of communication. It seems reasonable to state that there is no new educational resource which has ever been so widely adopted in so short a time at all levels of our educational system. This in itself is significant, for it suggests that colleges and universities across the nation are groping for better answers to critical educational issues. It also suggests that they are responding to the pressures that come from an inadequate number of able teachers.

In becoming interested in teaching by television, a foundation does not, in utilizing its risk capital, become concerned with television as such. Television is merely a tool, just as motion pictures, radios, charts, maps, books, laboratory equipment, are also tools to be used in education. Teaching by television becomes of interest to a foundation only when it can be shown to be a useful and more efficient method to solve critical educational problems than past procedures.

Considerations such as these have led the Fund for the Advancement of Education to embark on a program of support for demonstrations of the potential uses of television in college teaching, in spite of the great resistance to changes in education. Professor Paul

Mort, of Columbia University, has pointed out that it takes about fifty years from the time an idea is advanced for changing an educational practice until it is generally adopted. Fifty years are just not available to us, however, and solutions must be found in less time. This is the point at which risk capital can be effectively used to speed up change. The Fund for the Advancement of Education has, therefore, financed many ways to utilize television in teaching. Among these are the following:

1. Projects designed to extend the services of the ablest teachers in undergraduate instruction.

A. Stephens College. One course offered over closed-circuit television to all students in the college by an outstanding teacher, with arrangements to make possible small group discussions immediately after the telecast of a lesson.

B. New York University. Comparisons of students taught by television in English and other subjects with students taught in regular classes.

C. San Francisco State College. Arrangements to teach students over television through the educational television station so that students can listen to their instructors at home. Arrangements have also been made with the high schools of San Francisco to permit the ablest high school youngsters to take courses for college credit over television.

D. Pennsylvania State University. The most extensive program thus far designed for comparing the learning of students taught over television with that of students in regular classes. Related testing has also been devised for determining the appropriateness of television for different subjects, and for understanding attitudes and their possible relationship to achievement.

E. Miami University (Oxford, Ohio). Similar comparisons and attempts to find out the attitudes of students and faculty towards television instruction.

F. Chicago City Junior College. A full junior college program offered over television.

2. Projects designed to improve the preparation of teachers.

A. University of Minnesota. Closed-circuit television used to demonstrate effective teaching.

B. Texas. A state-wide program offered over a network of 14 television stations in an effort to prepare liberal arts college graduates for teaching.

3. *Projects designed to use college teachers to raise the standards of school instruction.*

A. Professor Harvey White, Vice-Chairman of the Department of Physics at the University of California, went to Pittsburgh on leave for one year to teach high school students a basic course in physics over television. While he taught, the course was recorded on film and is now widely used throughout the country where physics teachers are not available, as well as in some colleges and universities.

B. State-wide programs carried on through the University of North Carolina, University of Alabama, and University of Nebraska.

These projects are illustrative of efforts to find out how best to use television for college and university teaching. They are yielding an extensive body of data so that we can begin to understand and see its uses for education. Even more important, they are almost forcing a reconsideration long overdue of the whole educational process.

But, as in all other educational experimentation, the results are not and cannot be conclusive. We do not yet know what we need to about the nature of the educational process itself, about the relevant determinants in human behavior. We lack the body of empirical data in the behavioral sciences that we have acquired in the physical sciences, from which new hypotheses can be formed and validated.

More specifically, on television in education, if we are convinced that all teaching must now and for all time be done in a classroom with one teacher for every 13 or 14 students, and with that single teacher doing all tasks related to the teaching process, we can look at the research on the uses of television for college teaching and conclude from it that measures are inadequate, that important variables in the experiments have been uncontrolled, and that comparisons with different forms of teaching are too meager. I venture to say that if we carried on similar experiments in every college in the United States for the next ten years, we could not possibly collect the kind of evidence that could dispel pre-formed prejudices on what are the most effective teaching procedures. This is true not only for research on television in education, but for all convictions relating to the very complex field of human teaching and learning, motivation and behavior.

If, on the other hand, we feel strongly that television can be used in education, for example, to extend the effectiveness of our most able teachers, we now have a good deal of evidence from these same experiments to support this conviction.

The list of institutions of higher education which are now experimenting with the uses of television has already become too long to cite, as in the past three years it has grown to include over 25 colleges and universities, teaching more than 30 different courses to about 25,000 students. On the basis of the evidence to date, the following conclusions can be drawn:

1. *Students do at least as well when studying with television teachers as students taking the same work in conventional classes.*

The most meticulous and extensive comparisons of teaching by television and conventional methods have been made at Pennsylvania State University, where closed-circuit television has now been in use for three years. Results indicate no significant differences in informational learning when courses were given by television as compared with conventional teaching. These were controlled experiments in which the same teachers taught the comparison groups by direct and televised methods. The results have been consistent in such diverse courses (involving about 1800 students) as the following: psychology, chemistry, elementary business law, sociology, meteorology, and music appreciation. At present 13 courses are being given at Penn State to 4206 students.

The Penn State workers suggest, however, that failure to find significant differences may occur because of poor definition of what is measured, or because of inaccurate tools of measurement. They suggest that learning is inadequately defined by tests which stress subject-matter information, and that we haven't yet "defined and gained control over the forces which will enable us to advance importantly real academic achievement."

Another project at Miami University (Oxford, Ohio) compared achievements in three types of classes: television, large non-television, and small control groups. When achievement was measured by conventional tests, it was again found that for most courses students in television sections learn as much as those in control sections. When achievement was measured instead with problem-solving tests, television students did about as well as those taught by conventional instruction in two courses, and scored slightly lower in one.

Chicago's experiment, the Chicago City Junior College, offering regular college courses for credit via open-circuit television, was received with enthusiasm both by students and the public. About 2500 students enrolled for credit in the first two semesters, and while the experimental work was designed for them, about 10,000 study guides were sold to non-credit students in the first year of the project.

Many of the students who successfully completed the junior college work would have been unable to attend conventional classes because of conflicts with jobs, or family responsibilities.

The Chicago Junior College experiment compared television students with two types of control groups: one, control classes taught by both television lessons and a section teacher; the other, the conventional control class. The achievement of the television group was higher than for both control groups. While this may be accounted for by the greater maturity and motivation of the experimental television group, the Chicago investigators state that the data "does prove the respectability of the work done and the credits earned by the television students insofar as we have evaluated it by our best available instruments."

2. Many more students can have access to really great teachers through the use of television than is possible with the usual classroom arrangements.

3. Teachers can extend their services greatly by using television in instruction.

These conclusions follow from my first one, for if students do as well when taught by television as by conventional methods, it follows that we can bring our greatest teachers to more students through television; and also that our greatest teachers can reach more students effectively than otherwise. At Penn State, for example, enrollments in television sections now range from 100 to 800 students, with 350-400 the most typical. In this context it is of interest to note that in the testing of attitudes at Miami University, although most students said they preferred small conventional classes, the majority also said they would enroll in a television class, if it meant they were assured of being taught by an excellent instructor.

4. Television instruction can be offered at lower costs than regular classroom instruction.

No matter how positive the results may be on the effectiveness and appropriateness of television for teaching, if the costs are too high when compared to conventional practices, the new methods will not be used. Results at Pennsylvania State tell us that large numbers of students can be taught by television at costs that are favorable to television if enrollment in the average course exceeds 200.

Obviously, the very short time that television has been used in college instruction leaves many questions unanswered, and also brings up many new ones for the future. Some of the most provoc-

ative material from the project reports can be found in the questions raised for further exploration.

One of the most interesting of these is the critical evaluation of present and past achievement tests. There is growing dissatisfaction with tests which define learning mainly as the ability to remember and reproduce large amounts of factual information. Television has stimulated further efforts to develop tests to measure major educational objectives such as problem-solving ability and long-term retention of material.

There is also more speculation about the real nature of learning. Many reports suggest that the role of motivation has been ignored, although it is one of the important factors in the student's learning process. Investigators have wondered whether television can provide greater motivation than conventional teaching methods. For example, if students are unable to ask as many questions when taught by television as when taught by conventional instruction, does this handicap their learning, or can it make them assume a more active responsibility for finding their own answers?

Some other questions which remain unanswered are:

1. To what extent can the greatest teachers throughout the world be made generally available to college students across the nation?

2. Given a very able teacher, what adaptations need to be made in his procedures to make them most effective in television instruction?

3. When courses on television are especially adapted to that medium, does such adaptation increase the learning of students as compared with lecture-blackboard conventional presentations?

4. What special skills are needed by students and teachers for effective use of television, and how can these skills be best developed?

5. What is the precise nature of learning from television, and does it differ from other learning?

6. What are the most effective arrangements for class size, physical setups of television classrooms, and distance of students from receivers?

7. Can academic achievement be increased by offering different types of class situations for students, e.g., should they have both direct and televised instruction on a schedule of rotation?

8. Does student-instructor discussion necessarily contribute to learning in all courses, and how can opportunity for two-way discussion be offered under conditions of television teaching?

9. Because attitudes toward television on the part of students and teachers may affect achievement, how can such attitudes be tested, and their possible relationship to achievement measured?

10. What types of educational objectives are most readily attained by television; and conversely, what types are difficult or impossible by this means?

11. What kinds of educational objectives can be attained by television which cannot be attained any other way?

Television combines visual and auditory perceptions in time, and so adds a new dimension to education. It is a resource as important, if not more so, than the printed page. Although we are still neophytes in its uses for teaching, already it seems clear that if we learn how best to utilize its unique characteristics, we can not only meet our serious teacher shortage, but also raise the quality of all teaching, as we make our finest teachers available to an ever growing number of students.

It is in this sense that for me the potential use of television in college instruction goes far beyond any answers we can get from research. Perhaps the major question of all which we should now be trying to answer is this: given books by the best writers, and given television and films prepared by the best teachers, what additional kinds of experiences should a college or university provide in order to set up optimum conditions for learning?

To determine the answers to this large question in relation to the most effective tools we now have, and in relation to all the objectives of instruction which we regard as crucial for this post-satellite age, will need not only additional risk capital, but also our most imaginative and creative thought. What could be a more stimulating challenge than to devise ways by which our colleges of the future can use television and films to aid students to become all they are capable of being?

Alvin C. Eurich is Director and Vice-President of the Fund for the Advancement of Education.

TELEVISION—TECHNOLOGICAL REVOLUTION IN EDUCATION*

Harvey Zorbaugh

At the February meeting of the American Association of School Administrators in Atlantic City, Charles Siepmann, at a session on "Television and the Crisis in Education," spoke to an audience that filled the 5000 seats in the auditorium of Convention Hall and clogged the exits with standees. That afternoon, hundreds were turned away from a two-and-a-half hour demonstration—live and kinescope—of closed-circuit teaching that jammed six large viewing rooms; a repeat the next afternoon again filled the viewing room to overflowing; a panel discussion the following afternoon played to standing room only.

Five years ago such a series of events, had it been attempted, would have attracted but a handful—a handful who would have been looked upon by most of their colleagues as deluded, if harmless, lunatics. But today the Joint Commission on Educational Television reports there are 150 closed-circuit installations in our schools and universities; 31 educational stations on the air, 90% of them regularly broadcasting instructional materials to our schools, or to students enrolled in courses in our colleges; while many other school systems are being given air time by, or are buying air time from local commercial stations for educational use. And the number grows so rapidly these figures are only approximations.**

Experimentation with teaching by television already blankets the country geographically. It is rapidly working its way downward from adult education, through our professional schools and colleges, into our high schools and elementary schools. It is steadily working its way inward, from the offering of supplementary materials, to the teaching of the core of the curriculum. Here and there it already shows signs of having become accepted and entrenched as a permanent part of the apparatus of education.

Much of this experimentation has been the subject of careful research. For example, the experimentation in the past three years at Pennsylvania State University where some 24,700 students in 84 semester courses have been exposed to televised instruction in

* This article is adapted, condensed, and updated from an address made before the 1957 Convention of the Society of Motion Picture and Television Engineers, which appeared in full in the November 1957 issue of the Society's Journal.

** Personal communication from the Joint Council on Educational Television Washington, D. C., Mar. 12, 1958.

one form or another, the courses including such diverse subjects as chemistry, music, accounting, German, air science, psychology and education. Meticulous research accompanying this experimentation reveals no significant difference in achievement between students taught in whole or in part by television and students taught in customary ways.*

Pennsylvania State University's conclusions have been confirmed by experiments in many other colleges around the country. The pattern varies: from televising what occurs in a classroom and extending it to many other classrooms; through televising a lecture-demonstration, to be followed by its discussion under the leadership of instructors in the viewing rooms; to the use of television as an audiovisual aid to the instructor in a single classroom. But always, the results are the same. When compared with the achievement of students instructed in traditional ways, the achievement of students receiving all or part of their instruction by television is at least as high.

The evidence seems clear that facts, principles and basic motor skills can be taught to young adults as effectively by means of television as with an instructor facing students in the classroom. The experience of the Armed Forces confirms this conclusion. Even the skeptics are coming around. Charles Siepmann, in the address referred to above, observed: ". . . for some time I remained skeptical about these findings. But during the last year, I have had opportunity to test the theory that seeing, alone, is believing. I have traveled widely and observed many of these experiments in action. I came, I saw—and I was convinced. Of what? Of the fact that something is going on here of revolutionary significance to the future of education in this country. . . ."

Much of the required core of general education is already taught by the lecture or lecture-demonstration method, as are many elective and advanced courses in the larger universities. The transition to televised instruction is not unduly difficult for either instructors or students. Certainly, televised instruction is one way to meet the impending shortage of fully qualified instructors in our colleges, extending as it does the best teaching to unlimited numbers of students. It appears likely that in the end it will prove permanently the best medium for a considerable part of instruction.

Meantime, experimentation is rapidly extending downward into

* Personal communication from L. P. Greenhill, Associate Director, Instructional Research Program, Pennsylvania State University, Mar. 17, 1958.

the secondary and elementary schools—Pittsburgh, Detroit, Chicago, St. Louis, Cincinnati, Schenectady, Levittown, Evanston, to mention but a few of the school systems involved. Here the results are not yet in; but many of the educators involved express enthusiasm over the apparent success of these experiments. Pittsburgh and St. Louis report that TV groups learned all subjects involved as well as did the groups conventionally taught, and learned several subjects even better than the others.

It will be particularly interesting to watch the progress of the five-year experiment, underway in Washington County, Hagerstown, Md., which emphasizes "direct instruction of pupils in the basic subject matter offerings of the curriculum." At its conclusion, it will have involved all the schools in the county and their 18,000 pupils. The careful evaluation of the results, which is planned should tell us whether television has the instructional potential in the schools that it has in the colleges. I am confident that it will.*

The interest of educators in experimenting with television goes far beyond that of discovering its potentialities for helping to meet the impending, critical shortage of qualified teachers, however.

All over the country, from the elementary schools to the universities, experimentation is being focused increasingly on exploring the unique potentialities of television as an instructional medium.

While this exploration is only beginning, it is clear already that there are areas in which television is vastly improving the quality of instruction. Science, medicine and dentistry are illustrations. The television camera and the large-screen receiver are an unrivaled device for helping students to see how things occur, how things are done.

The report on a recent survey on television in American dental schools, conducted by the American Dental Association, pointed out: "In the past . . . groups of only five or six students would cluster around a table or patient to see first-hand the methods described by the lecturer. This means the instructor would have to repeat the demonstration as many as twenty times to accommodate all students in a course. Now through the medium of closed-circuit television an entire class of 90 or 100 students can watch the demonstration at a time, thereby saving as much as three week's time for one instructor."

More important, each of the hundred students has a clearer view than any one of the five or six had, when clustered about the

* *Closed-Circuit Television Project Notes*, Board of Education of Washington Co., Hagerstown, Md., Jan. 16, 1957.

instructor. Here television is used as an audio-visual aid to improve instruction. With the advent of color it is sure to have wide use in the sciences and training for related professions.

Anyone who has watched Dr. Harvey Elliott White teaching high-school physics in Pittsburgh, or Mrs. Anne Slack teaching French to grades 3 to 5 in Schenectady, must conclude that television promises to improve the quality of instruction at all levels, and through a wide variety of subjects.

Commenting on the results that already are in, Dean Thomas Clark Pollock of New York University, Chairman of its Committee on Evaluation, said recently: "It now seems clear . . . that television offers the greatest opportunity for the advancement of education since the introduction of printing by movable type. This comparison is made soberly."

At the present stage of our experimentation with teaching by television, it often seems that we are uncovering problems faster than we are solving them. Some of these problems are predominantly technical, others predominantly educational, though the two are intimately interrelated. Let's look at some of the educational problems. As an illustration, I will take problems we are currently concerned with at New York University.

The relation of television to the total pattern of instruction: This may vary from using television to reproduce classroom instruction and extend it to a multiplied number of classes, to treating television as another "audio-visual aid" to be used where it proves fruitful. Is television most useful in one way or the other? Or in a variety of ways within this variable according to the instructional problems presented from one course to another, or from time to time during the instruction of a given course?

The relation of television to other particular instructional methods: In the case of composition, for example, what is the proper relationship to discussion, writing and reading? Are television and discussion most fruitfully related serially in separate sessions, or does it prove more fruitful to have each televised presentation flow directly into subsequent discussion? What is the most productive relation timewise, or proportionally, of television and discussion? How do the answers vary with the subjects and objectives of courses?

The pattern of use of instructors: This may vary from the use of a series of specialists in various areas of course through the use of an instructor acting as coordinator throughout the course (to introduce each TV presentation, to point it up, and to relate it to the continuity of the course) while drawing on a wide variety of

specialists for contributions from presentation to presentation, to having one instructor do all the TV teaching.

The selection of content: What content proves most productive in realizing the objectives of a course when it is televised in whole or in part? How, if television is to be used fruitfully, should the instructor's selection of materials be influenced by its use? What, further, may the wide variety of auditory and visual materials available or possible, normally cumbersome and sparingly used but easily handled on television, contribute as content to forwarding the objectives of a course?

The use of professionally trained producer-directors: What has professional production to contribute to realizing the objectives of the courses? It is possible, as Pennsylvania State University has demonstrated, to extend effectively traditional instruction by television through personnel with little or no TV experience. But how much more may experienced, imaginative direction (operating through skilled video and audio engineers in the control room and experienced cameramen on the floor; experimenting with lighting, sound, use of cameras, documentary and dramatic techniques, etc.) contribute to the effectiveness of television presentation in teaching?

Personal qualities of instructors: What are the personal qualities of the instructor which determine his effectiveness in teaching by television? We have already had enough surprises, happy and unhappy, to become aware of the fact that the effectiveness of an instructor on television is not easily predicted from his performance in his accustomed teaching environment.

Size of the viewing group: What is the optimal size of the viewing group for the most effective instruction? What are the critical factors in determining the optimal viewing group? Are they technical (size and quality of the visual image; characteristics of the sound)? Or are they social-psychological (traditional attitudes toward the instructional situation; or social-interactive processes)? Or both? And how do they vary with the subject matter and objectives of courses?

Length of the television presentation: What is the optimal length of a given television presentation for instructional purposes? To what extent is it determined by the attention span of students? By their capacity for sustained close concentration? By visual fatigue? To what extent is it determined by the demands television makes upon the instructor? To what extent are these demands related to the way in which television is used in relation to the total instructional pattern?

The suitability of various subject matters, in terms both of their educational objectives and contents, to presentation by television: These variables, to point out only the more obvious, are interdependent, complex and but roughly defined. But they are the foci of problems that must challenge any school system or university seriously experimenting with the use of television in instruction. Admittedly it is impossible for a given institution concurrently to study them all. Indeed, achieving even approximate answers to the questions that arise must be the joint enterprise of all institutions experimenting with the use of television in teaching.

Merely to have raised these questions is to recognize the technological revolution with which television threatens traditional concepts and practices in education—changes in the role of the teacher, changes in methods of teaching, and so in the training of teachers, changes in curriculum, changes in administrative planning and budgeting, changes in the physical structure of school buildings.

Because educators are well aware of this, there is among them, naturally enough, considerable questioning of, and opposition to, the increasing use of television in teaching. Some of this opposition comes from those who are against any change; from among those who do not wish to be disturbed in their familiar and comfortable ways; and from among those who have a proprietary, precious attitude toward their scholarly knowledge. Their counterparts in ancient Egypt are reputed to have opposed the art of writing, and in the fifteenth century, to have opposed the printing of books.

In the universities, where the supervision of teaching is not *comme il faut*, and a man can teach a lifetime without anyone's coming into his classroom to observe what he is doing, some teachers look upon television as an invasion of their privacy. The prospect of teaching on television, exposed to their peers, affects them like dreaming they are walking down a crowded street and suddenly realize they have no clothes on.

Most of the opposition, however, comes from those who see in television the threat of technological unemployment, the degradation of the teacher's status and role, or the dehumanizing of the teacher-pupil relationship.

Many are concerned lest television greatly reduce the need for professionally trained teachers, if not displace conventional teaching altogether. Last summer the American Federation of Teachers, at its 40th annual convention, unanimously resolved that whatever the usefulness of television may be as another audio-visual aid, televised instruction must not become the core of the curriculum. "We are

unalterably opposed to mass education by television as a substitute for professional classroom techniques."

This, to my mind, is an idle fear. Education is more than the transmission of facts, principles and motor skills. It is also guidance in social and emotional development, in growth in maturity, in the acquisition of healthy ways of dealing with the problems of living, in the clarification of ideas about the world, in commitment to values. All this takes place in interpersonal relationships, in which good teachers always must play a critical role. The farther down in the educational process we go, the truer this is. Moreover, the impending shortage of teachers promises to be so great that, television or no television, there will be need for every competent teacher available.

Even where teachers accept this fact, they still are concerned with the effect of television on their professional status and roles. Some fear that the teacher's scholarship and skills will become subservient to the "show" as conceived by television technicians. Others fear that television exploiting the talents of those that prove especially adept at using the medium, will degrade the status of the rest to that of monitors and markers of test papers.

There is no doubt that television will change the functions performed by many teachers. But this is not to make them less vital to the education of youth. And we who teach should remember that history clearly shows that in education, as in every field of human endeavor, new tools have always increased the importance and status of the craftsman.

Beyond these anxieties is the sincere concern of many teachers lest television dehumanize education. They contend that all learning must be an active process of give-and-take between pupil and teacher. They maintain that televised instruction, for the student, is all take and no give, a passive, unchallenging process; a sitting before viewing sets, merely looking and listening, a sterile absorption of fact and opinion.

To be sure, as a leading educator has put it, "You can't ask television a question, you can't debate it!" (Parenthetically, I would point out that the same objection could be made to books.) During the televising of a lecture-demonstration, class participation and student-teacher interaction are severely reduced. Television places a barrier between teacher and student.

All this is true. But typically, in both schools and universities, televised instruction flows immediately into class discussion where there is ample opportunity to question and debate. Moreover, wide

use of television in instruction will free much time of many teachers and scholars for closer, more personal contact with individual students and for research.

The frame of reference in which this question is argued is, further, likely to be misleading. It contains the implicit assumption that, were it not for television, students in our schools and universities would be taught in small, cozy seminar-type groups. Nothing, of course, could be farther from the truth. As I pointed out earlier, much of university instruction already takes place in large lecture halls. More will. The size of classes in our schools is large, and is rising.

After 30 years experience with university teaching of large lecture groups, I can assure you it is easy to overestimate greatly the amount of student-teacher interaction that typically occurs in them. As Professor Buckler, one of New York University's television lectures, remarked: "Is not the student closer to his teacher as a personality as he sits in a group of thirty watching and listening to him on the television screen than he would be in a group of several hundred in a large auditorium?" No one is suggesting that television be substituted for small seminars and personal contact between student and teacher. To the contrary, many educators believe that with swelling enrollments, only wide use of television, making possible more effective use of teaching staffs, offers a reasonable chance of preserving them.

This ferment is but the normal accompaniment of technological and social change. Dr. Clarence Faust, head of the Fund for the Advancement of Education, recently commented: "They say that some ancient Egyptians objected to the art of writing because it would dull men's memories. Centuries later some men fought against the art of printing because they feared it would undermine the authority of church and state. Now they are objecting to television because they think it will undermine teaching. But with the vast and urgent problems United States education now faces, American citizens cannot afford to neglect this new medium."

With continued encouragement from the Fund for the Advancement of Education, and with rapidly increasing numbers of educators agreeing with Thomas Clark Pollock that "It now seems clear . . . that television offers the greatest opportunity for the advancement of education since the introduction of printing by movable type," far from being neglected, it is making more rapid strides ahead. As the shadow of the shortage of teachers inches closer, more and more schools and colleges are declaring their intentions of ex-

perimenting with it. On a grant from the Fund, next year the Alabama Educational Network will start broadcasting basic curricular materials to the majority of the schools of the state; and the Southern Region Education Board proposes a regional network for the same purpose, with some 60 originating studios and more than 160 outlets in school systems and colleges, throughout the 16 states of the southern region.

Meantime, as the unique potentialities of television become increasingly apparent, television is being used more and more imaginatively for instructional purposes. New York University has two such projects in the drawingboard stage.

Because its School of Education has no model school in which teacher-in-training may observe demonstration teaching, some of its faculty are proposing a model classroom with one-way-vision glass walls within a television studio. The master teacher's procedures with his class would be televised through the walls of the classroom and relayed to a series of viewing rooms. In each room would be a critic-teacher who, immediately after the demonstration, would discuss it with the students. This technique might materially improve the quality of demonstration teaching; and should prove economically practical as compared to the cost of operating a demonstration school.

Some of the physics and television faculties of the Washington Square College of New York University are playing with the idea of a television science laboratory. This laboratory would have a bench in the form of a hollow circle, with students stationed on its inner and outer peripheries. The laboratory instructor would be stationed in the center. Two-way audio would enable each student to talk with the instructor. When a student asked for help, a remotely controlled camera traveling a circular track above the bench would move to the student's station, and would transmit a view of his experiment to a viewing screen on the instructor's table as they talked.

In case discussion could not clear up the difficulty, a camera mounted on the instructor's table, connected with a viewing screen mounted at a shallow angle at the front of the student's station, would enable the instructor to demonstrate to the student how to resolve his difficulty.

Fantastic? Perhaps. But the mere fact that such bold thinking is going on presages a tremendous technological revolution in education!

Harvey Zorbaugh is Executive Officer, Communication Arts Group, New York University.

A COLLEGE ENGLISH TEACHER LOOKS AT TELEVISION: COMPOSITION

William E. Buckler

I have divided this article into two parts. Part I is simply a description of and report on an experiment in the use of closed-circuit television in the teaching of College Composition which was conducted at New York University during 1956-1957. In the limited space at my disposal here, I cannot give much in the way of statistics; but such statistics are on record and will be published soon.¹ Part II touches upon a rather larger problem in the teaching of College Composition and should be regarded merely as one teacher's thoughts on a complex matter for a just appraisal of which we have few trustworthy objective guides.

I

THE COURSE DEFINED

College Composition at Washington Square College is a two-semester, six-point course in English fundamentals. The basic objectives of the course are the teaching of the principles of writing (correctly and effectively), reading (comprehensively and critically), and thinking (logically and imaginatively). During the first semester, the emphasis is on correctness and effectiveness of writing and thinking, including research documentation; in the second semester, while the principles of correct and effective writing are still emphasized, the subject-matter of the readings shifts to more creative forms of literature (stories, poems, plays), and the elements of literary criticism are taught.

THE COURSE PLAN

All daytime College Composition students participated in the experiment. During the first semester, there were twelve television sections and six control (or conventional) sections of the course; during the second semester, there were nine television sections and four control sections. Moreover, during the first semester, five of the control sections were taught by instructors who were also tutors (discussion readers) in television sections; this was true of two control sections in the second semester.

Television sections throughout the year met twice a week for an

¹ Professor Buckler, in 1956-57, taught the Washington Square College televised course in English Composition.

hour and fifteen minutes. The first portion of each meeting was devoted to a lecture-demonstration on television (average time: forty-five minutes), and the remainder of each period was used for follow-up discussion, theme-writing, testing, and so forth. Groups varying in size from fifteen to forty-five students viewed the television presentations in the same room; they were then divided into groups of fifteen or less for discussion periods. Some control sections met twice a week for seventy-five minutes; others met three times a week for fifty minutes. Control sections contained from twenty-five to thirty students.

All sections, television and control, followed the same syllabus.

THE STUDY DESIGN

The experiment was undertaken with a view to determining, under the conditions outlined above and with the use of such audio-visual aids as television makes practicable, how effectively a course in English fundamentals can be taught using closed-circuit television in contrast to the conventional method of teaching the course. (It should be noted that this was the second year of experimentation with the teaching of College Composition through closed-circuit television at Washington Square College. The second-year plan differed from the first in that the following recommendations, arrived at by a committee in the last months of the first-year experiment, were incorporated into the second-year program: [1] A syllabus should be designed which would forego none of the basic objectives of College Composition but which would be adjusted to the apparent best uses of the television medium. [2] So that there might be closer coordination between the work of the lecture-demonstrator and the work of the discussion leaders, the course should be taught in two seventy-five minute periods instead of three fifty-minute periods. [3] The amount of time given over to a television presentation should be kept completely flexible, dependent wholly upon the lecture-demonstrator's needs. [4] To give the greatest possible unity and continuity to the course, a minimal staff should be involved in the actual television presentations.)

THE MEASURES OF ACHIEVEMENT

First term only. The Cooperative English Test, a two-hour objective test with sub-scores on "Mechanics of Expression," "Effectiveness of Expression," and "Reading," was administered to all students at the beginning and end of the first semester.

Second term only. The Cooperative English Test of Literary

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Comprehension, a forty-minute objective test, was given to all students at the beginning and end of the second semester.

Both terms. All students wrote three themes during the year which were used for evaluation—one at the beginning of the year, a second at the end of the first semester, and a third at the end of the year. Each theme was written during a fifty-minute period on any one of six topics assigned, the topics remaining constant for all three themes. The student never saw his theme again after he had written it, and the dates of composition of the different sets of themes were not given. Moreover, instructors did not mark these sets of themes in any way.

The themes were coded according to date of composition and sent for evaluation on the basis of effectiveness of expression to the Writing Project of the Educational Testing Service. The evaluation was made by ETS on a relative basis: the themes (combined for both semesters) were sorted into nine "goodness" groupings, the number of themes allowed in each grouping being determined by a normal distribution. Grades on the themes, therefore, varied from one to nine.

THE FINDINGS²

1. In both television and control classes and for both semesters, students learned the subject-matter of English fundamentals with about equal effectiveness.

2. In both television and control classes and for both semesters, students at the low initial-knowledge (or ability) level made the greatest gains.

3. During the first semester, students in control classes on all initial-knowledge levels improved their *test scores* more than did students in television classes; however, the differences were not statistically significant.

4. During the second semester, students in television classes on all initial-knowledge levels improved their *test scores* more than did students in control classes; the differences, however, were statistically significant only within the high initial-knowledge level group.

5. In theme-writing, during the first semester students at the low initial-ability level in control classes improved significantly more than did comparable students in the television classes; there were no significant differences between television and control classes at the middle and high initial-ability levels.

6. In theme-writing during the second semester, students at the

² For Findings 1 to 6, I have drawn heavily upon the typescript of Professor Klapper's report.

high initial-ability level in control classes improved significantly more than did comparable students in the television classes; at the low and middle initial-ability levels there were no significant differences between television and control classes.

7. Students in television classes did better in comparison to students in control classes during the second semester than they had done during the first semester. This fact suggests at least three possible conclusions:

a. that students need at least a semester's experience to "get the hang" of learning from television instruction;

b. that literature and literary criticism are more teachable through television than are the basic mechanics of composition; and

c. that for students in television classes during the first semester, the learning process was somewhat impeded by a too-energetic attention, on the part of students and instructors alike, to the pros and cons of television itself, as a medium of instruction.

8. Five of the discussion leaders in television classes during the first semester also taught control classes. A comparison of the results with this constant added can perhaps be shown clearest in tabular form. The following table gives the pre-scores, the post-scores, and the gains, on both the Cooperative English Test and themes, of television and control classes having the same instructors for the first semester of College Composition:

In analyzing this table, one very important matter should be kept in mind: as stated above in Finding 2, and as might be expected, students at the low initial-knowledge (or ability) level in both television and control classes made the greatest gains. The importance of this fact can be seen instructor by instructor.

Instructor 1: The greater gain of his television class on the Cooperative English Test is correspondingly more noteworthy because the *probability of greater gain* lay with his conventional class, which had a lower initial-knowledge level; by the same token, the greater gain of his television class on the theme becomes less noteworthy.

Instructor 2: The initial-knowledge level and the gains on the Cooperative English Test in both classes are closely comparable. The slightly greater gain of the television class on the theme (.50) corresponds exactly with the lower initial-ability level of the television class (.50).

Instructor 3: The greater gain of the control class on both the Cooperative English Test and the theme is correspondingly less noteworthy because the probability of greater gain lay with this class.

Table 1. Summary of Findings

	Cooperative English Test		Television		Themes		Cooperative English Test		Themes		Gain ^a
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	TV	Control	
Instructor 1	59.1	61.4	53.2	54.2	3.86	4.79	4.72	4.63	2.3	1.0	.93
Instructor 2	56.1	59.5	56.9	59.9	3.91	6.09	4.41	6.09	3.4	3.0	2.18
Instructor 3	64.8	64.6	58.7	61.8	5.09	5.55	4.63	6.44	-0.2	3.1	.46
Instructor 4	59.3	64.1	55.9	63.4	4.18	4.36	4.73	4.63	4.8	7.5	.16
Instructor 5	62.0	64.4	57.2	59.4	4.80	6.10	5.15	6.30	2.2	2.2	1.30
											1.15

^a"Gain" is arrived at by subtracting the mean pre-test scores from the mean post-test scores.

(Incidentally, there is a striking correlation between the results of these two quite disparate ways of testing Composition classes—by themes and by long objective examinations.

Instructor 4: The greater gain of the control class on the Cooperative English Test and of the television class on the theme loses significance when the initial-knowledge (and ability) levels are taken into account. (Note, for example, that despite the rather spectacular gain of the control class on the Cooperative English Test, the mean post-score is still lower than that of the television class.)

Instructor 5: Although the gain of the television class is identical with that of the control class, the *probability of greater gain* was very strongly in favor of the control class, the initial-knowledge level of which was 4.8 below the television class on the Cooperative English pre-Test. The slightly greater gain of the television class on the theme loses importance since the lower initial-ability level of that class was lower than that of the conventional class.

Conclusion: There is absolutely no evidence that College Composition is more effectively taught in the conventional manner than in the manner of the experiment described in this article; there is every indication that, even in the face of the difficulties accompanying so unconventional an excursion into so traditional a course—a lecturer trained in the classroom rather than in the studio, a tutorial staff and a student body antagonistic, in varying degrees, to the experiment, and so forth—College Composition was as well taught in television classes as in conventional classes at New York University in 1956-1957.

II

This will not be a popular conclusion with teachers of College Composition, nor does it necessarily represent the point of view which I myself would *like* to hold. Moreover, as the results of other experiments with television in this subject-area are gathered and studied, the conclusion itself may one day be exploded by carefully marshalled evidence. After all, the New York University experiment, though a carefully controlled one, involved a relatively small number of students compared with the number that would have been involved in one of our larger state universities. But from the evidence the experiment itself has provided, I see no other possible conclusion.

And why will college English teachers chafe against this conclusion? Because it runs counter to everything we "know" to be true about the teaching of Freshman Composition—namely, "the only way" to teach it is (1) in small classes of about twenty students (2) in which the so-called Socratic method is employed and (3) during

the course of which twelve themes a term—whatever the number a particular staff has become accustomed to, it is sure to be magical—are written by the students, (4) read and fully criticized by the instructors, and (5) carefully revised by the students.

But how do we "know" all this? Because we have never succeeded with larger classes or failed with smaller ones? Because a student must never be told the difference between "good" and "bad," "right" and "wrong," but must always be allowed to think that he thought of it himself? Because it has been demonstrated that a group of students cannot be brought to a satisfactory level of writing competence by eight papers of this length or fifteen of some other length? Because students consider criticism of their writing so seriously that it is worth an instructor's time and energy to take pains to mark each of twelve themes in great detail, even though his comments on any one of them may not be quite unlike his comments on the other eleven?

What I would suggest, then, is that before the results of the New York University experiment with television, however clear-cut and important, will become persuasive to college English teachers, a good many of their favorite assumptions will have to be carefully searched with a view to separating fact from myth (especially the myth of the magical number). In short, we need a whole battery of controlled experiments.

Before such experiments are undertaken, however, we will have to reach agreement on three points. (Otherwise, when we come like Lazarus from the dead to tell all, we will ourselves be told, "That is not what I meant at all. That is not it, at all.") First, what are the objectives of College Composition? Second, by what measures of achievement is accomplishment of these objectives to be tested? Third, who is to "read" the measures and interpret the results? I take it that unless all the labor in the field of tests and measurements during the past three decades has been quite futile, decisions are possible on these three points.

Thereafter, experimentation can proceed on a thoroughly national scale, with results of national significance. And at any rate, we will be striving to act according to the good maxim of Matthew Arnold's Bishop Wilson: "First, never go against the best light you have; secondly, take care that your light be not darkness."

William E. Buckler is Assistant Professor, Department of English, Washington Square College of Arts and Science New York University.

DOES LACK OF CONTACT WITH THE LECTURER HANDICAP TELEVISED INSTRUCTION?

Hope Lunin Klapper

Most institutions using closed-circuit televised instruction do so in an attempt to increase the number of students who can be taught by an instructor. Many institutions, unwilling to eliminate the traditional pattern of student questions and discussion, include discussion classes as well as the televised lecture as integral parts of their televised courses.

If small discussion groups are included in the course structure, one of two situations must obtain. Either the television lecturer cannot lead all discussion groups or the number of students he teaches cannot be increased by television. It is thus important to know whether it is essential that the discussion classes be led by the television lecturer himself. It is important to determine whether a discussion group led by a non-lecturer would be in any way penalized by its lack of contact with the lecturer.

New York University, in its 1956-1957 experiments with televised instruction, addressed itself, among other topics, to the importance of the lecturer-led discussion group. The data which throw light on this topic derive primarily from two social science courses offered by closed-circuit television. One course, "Man's Cultural Heritage," was offered twice, in the Fall and Spring Semesters, by the School of Education. The second course, "History of Civilization," was offered in the Spring semester by the School of Commerce, Accounts, and Finance.

"MAN'S CULTURAL HERITAGE"—COURSE CONTENT, STRUCTURE, AND STAFF

1. *Course Content:*

"Man's Cultural Heritage" is a one semester, four-point course, staffed by members of the Department of Sociology and Anthropology. Concentrating on specific areas of our cultural heritage, the course addresses itself first to the nature of culture, normative behavior, the institutional structure of society, and the social value system. It then treats the historical development of five major values in contemporary American Society: the family, the equality of man, religion, science, and political democracy. Each of these social values, except the "equality of man," is also a social institution, and the course also considers the functional inter-relationships among the institutions

* Professor Klapper headed the instructional team which in 1956-57 taught the School of Education's televised course, Man's Cultural Heritage.

and the relationships between the institutions and the value system of our society. Course materials accordingly emphasize ideas and relationships rather than facts or demonstrable techniques or methods.

2. Course Structure:

Students taking the televised course (119 the first term, 105 the second) were divided into four classes which met simultaneously for two hours twice weekly. The first half of each class period consisted of a televised lecture which usually lasted between 40 and 50 minutes. The rest of the period was devoted to a faculty-led class discussion of the lecture, the readings, and topics related to but not specifically covered by either.

3. Staff Structure:

Each discussion class was led by a faculty member. Two of the four discussion leaders were graduate students who possessed some teaching experience, but who had not been previously associated with the course. The remaining two were regular faculty members, who had previously taught the course in non-televised form. One of the two regular faculty members was in charge of the course and gave most of the televised lectures. The second regular staff member gave several televised lectures. Three lectures were presented by the Chairman of the School of Education's Department of Social Studies, who, of course, did not lead any discussion section. One lecture was given by a non-University guest lecturer who also appeared in none of the discussion sections.

In sum, students in two discussion classes had no contact with any of the television lecturers. One discussion class met regularly with the major television lecturer, and one met regularly with an instructor who gave some of the television lectures. All four discussion classes heard four lectures by lecturers with whom they had no contact.

"HISTORY OF CIVILIZATION"—COURSE CONTENT, STRUCTURE, AND STAFF

1. Course Content:

"History of Civilization" is a four-point, one semester course required of all students and usually taken during the first term of the freshman year. The course, surveying selected areas in the history of civilized man, begins with the Greek period and ends with contemporary events. Each period and movement is studied in terms of its origins, characteristics, and influence on succeeding cultures. Thus, although the course does present dates and names, like "Man's Cultural Heritage" it deals primarily with ideas and relationships.

2. Course Structure:

One hundred and forty students took "History of Civilization" by television. They were divided into six faculty-led classes which met simultaneously for two hour periods twice weekly. Each class session began with a televised lecture of roughly 55 minutes. The rest of the period was devoted primarily to conventional instruction, with the instructor supplementing the lecture. However, roughly ten minutes of each follow-up period was devoted to questions on the lecture.

3. Staff Structure:

Each of the six follow-up groups was led by a faculty member. One of these, an Associate Professor, was in charge of the course and gave most of the televised lectures. A second regular faculty member gave some of the televised lectures. The remaining four group leaders were relatively inexperienced, having been hired expressly to complete the staff of the course. They gave none of the televised lectures.

In sum, four classes had no contact with the television lecturers; one class was taught by the major lecturer; and one class was taught by an instructor who appeared on some of the telecasts.

STUDENT LEARNING

Students in "Man's Cultural Heritage" were given an objective test containing 98 items at the beginning and at the end of the course. As shown in Table I, learning varied by instructor. The most consistently effective was No. 2. Her class achieved more (but not significantly more) than two other classes the first term, and more (but not significantly more) than all other classes the second term.

TABLE 1
Achievement ("Man's Cultural Heritage"): Pre- and Adjusted
Post Scores*
(by Instructor)

Instructor	First Semester		Second Semester	
	Pre (X)	Adj. Post (X)	Pre (X)	Adj. Post (X)*
No. 1	58.5	76.6	61.8	73.4
No. 2	59.0	78.1	57.6	75.5
No. 3	58.2	83.2	69.0	74.8
No. 4	59.6	74.7	61.1	73.1

But Instructor No. 2 was one of those who never appeared on television. Her classes, by the same token, had no meaningful personal

* The adjusted post-test means were obtained by co-variance analysis and essentially correct the actual post-test means for differences in pre-test mean scores. These values are the values of the post-test means which would have been found if the sub-group means had been both equal to each other and to the total mean.

contact with the lecturers. Clearly then, students whose discussion section leader is not the lecturer can learn at least as much as students whose discussion section leader is also the television lecturer. Provided that they have a competent instructor they are not educationally penalized by lack of contact with the lecturer.

Confirmatory indications are provided by the students' reactions to the guest lecturers. In the opinion of the four instructors, the students learned the material about as well as they learned other course material, though all questions on those lectures were addressed to the discussion group instructors rather than the lecturers.

SUMMARY

"Man's Cultural Heritage" was taught effectively via televised lectures followed by traditional discussion sections even when the discussion section was not led by a television lecturer. The most consistently effective instructor was one who appeared on no telecasts. Class contact with the lecturer is seemingly not a necessary prerequisite of student achievement, provided that the discussion section instructor is competent.

STUDENT ATTITUDES

The success of a method of teaching is not measurable solely in terms of student achievement. Student attitudes toward the course experience and the method of instruction are also indications of success or failure.

A questionnaire designed to elicit student attitudes toward the specific televised course and toward televised instruction in general was administered to "History of Civilization" students. When asked how they felt about having taken "this course in which part of the instruction has been by television," the response of the major lecturer's class (No. 6) did not differ significantly from that of the total

TABLE 2
Reaction to Having Taken "History of Civilization" as a
Televised Course

Instructor*	Liked It	Did Not Like It	Mixed Feelings
No. 1	59%	23%	18%
No. 2	72	4	24
No. 3	67	11	22
No. 4	11	32	57
No. 5	45	0	55
No. 6	58	8	34
Total (All Classes)	48%	13%	39%

* Instructor 6 was the major lecturer. Instructor 5 gave some televised lectures.

group (see Table 2). Ranked in order of the percent who "liked it," his class stood fourth. The two classes in which favorable attitudes were most widespread were led by instructors who never appeared on telecasts.

Students were also asked if they found television "too impersonal." One might logically infer that those students with no contact with the lecturer would find television more impersonal than those with such contact. However, the class of the major lecturer again did not differ significantly from the total group (see Table 3). The one class in which not a single student found the procedure "too impersonal" was taught by an instructor who never appeared on television.

TABLE 3

"How do you feel about instruction involving a TV presentation followed by class discussion in relatively small groups?"

Instructor*	Too Impersonal	Brings Instructor Close—Makes Subject More Vivid	Not Much Different from Ordinary Instruction	Mixed Feelings	No Response
No. 1	18%	59%	0%	18%	5%
No. 2	0	62	14	24	0
No. 3	17	78	5	0	0
No. 4	11	16	11	58	4
No. 5	4	59	14	23	0
No. 6	17	46	20	17	0
)—	—	—	—	—
Total (All Classes)	11%	53%	11%	23%	2%

* Instructor 6 was the major lecturer. Instructor 5 gave some televised lectures.

When given a theoretical choice between "enrolling in a TV section taught by an instructor of known excellence or enrolling in a conventional section where you had to take your chances on which instructor you would be assigned to," the students of the major

TABLE 4

Preference: Televised Course with Known Instructor Versus Conventional Course with Unknown Instructor

Instructor*	Televised Course	Conventional Course	No Answer
No. 1	68%	32%	0%
No. 2	90	10	0
No. 3	78	22	0
No. 4	32	68	0
No. 5	91	9	0
No. 6	79	17	4
	—	—	—
Total (All Classes)	74%	25%	1%

* Instructor 6 was the major lecturer. Instructor 5 gave some televised lectures.

lecturer again did not differ significantly from the total group (see Table 4.) Of the two classes which overwhelmingly selected television, one was led by an instructor who gave only a few televised lectures and one by an instructor who gave no televised lectures at all.

SUMMARY

The lack of contact with the lecturers did not preclude nor apparently did it diminish favorable attitudes toward televised instruction. Indeed, the class most consistently and intensely favorable to televised instruction was that of Instructor 2, who never appeared on television. In contrast, the class of the major television lecturer did not often differ significantly from the total group.¹ Clearly, students did not need personal student-teacher contact with the television lecturer in order to feel favorably disposed toward, or even enthusiastic about educational television.

FACULTY REACTION

Student achievement and favorable student attitudes do not appear to require student-lecturer contact. But what of the lecturer? Does he require contact with the students in order to judge the effectiveness of his level and technique of presentation?

The faculty of both courses were informally interviewed at the end of the spring term. The interviews were unstructured, but both major lecturers commented on the unimportance of their leading a discussion group.

"I felt that the combination of my TV teaching and (leading my own) discussion was not profitable for me or for the class. It didn't help me appraise the TV lectures as much as I thought it would. I would, following the telecast, want to make the rounds of the discussion classes occasionally."

LECTURER "A"

"I did not feel I gained much, for my lectures on TV, by teaching the discussion section. I think I knew pretty well what they did get and what they would question."

LECTURER "B"

Both lecturers felt that the contact with the students did not really help them to lecture more efficiently. Further, both lecturers felt that having to lead a discussion section directly after the lecture was actually undesirable.

¹His class did object significantly more often to the inability to interrupt the lecture to ask questions. They also, significantly more often than the total group, preferred a conventional to a televised lecture (both with the same instructor).

"I am not happy about having to handle a discussion period after the transmission . . . there is too much tension in having to do television and then getting over to the discussion class; there is a problem of adjustment between the two teaching methods."

LECTURER "A"

"I dislike having a discussion section right after the lecture. There is tension before and during the telecast. When it's over there is a feeling of release and a feeling of a job done. Then, if you have a discussion section, you have to try to wind yourself up again, switch your techniques, change your orientation, and start all over again. It is not pleasant, and it does not help your effectiveness as a discussion leader."

LECTURER "B"

SUMMARY

A comparison of the achievement of students in the four classes of "Man's Cultural Heritage" indicates that lack of in-person contact with the lecturers apparently did not affect achievement. Comparison of student attitudes in the six sections of "History of Civilization" shows that lack of in-person contact with the lecturers in no way precluded nor did it even diminish favorable attitudes toward the course or toward televised instruction in general.

The major lecturers in both courses felt that leading a discussion group did not increase the effectiveness of their lectures.

The data indicate that it is apparently not necessary to the success of a televised course for the lecturer also to lead a discussion section. In all due caution, it must be noted that the lecturers in both courses had previously given the course through conventional means of instruction. The data should not be assumed automatically to hold for lecturers with no previous experience with the course.

Hope Lunin Klapper is Assistant Professor of Educational Sociology, School of Education, New York University.

A PROFESSOR OF COMMUNICATIONS LOOKS AT THE TEACHER TEACHING BY TELEVISION

Richard J. Goggin

After a number of years of close association with educational television, both broadcast and closed-circuit, it is a little difficult for me merely to "look" at it—at least wholly objectively. The involvement has been too deep and at times too daily ever again to consider any aspect of the field with anything but a non-static mixture composed of pleasant memories, frequent frustrations, occasional accomplishments, conclusions based upon facts and evidence, opinions colored by emotional experience, and a few biases that refuse to be pinned down. In essence this a prefatory note stating a belief that educational television in general, and instructional television in particular are far from being fully-explored, fully-known fields, and that all of us who are writing and speaking about them cannot be absolutely certain that our various conclusions, predictions, opinions, statistical data, and consummations devoutly to be wished will stand the tests of time. I, for one, will not settle for what I now know, and for what I find to be the current leveling-off place in instructional television; I am against any molds being fashioned until a great deal more experimentation, experience, imagination, sweat and even tears are expended to find the real and not the imagined limits of the use of television as part of the apparatus and methodology of teaching and learning.

Two impressions of reactions to television by two quite different people are indelibly fixed in my memory. The first was many years ago—1939, to be exact, when I was working at the experimental television station of the Columbia Broadcasting System in New York; Gilbert Seldes, who was then in charge, formulated the classic simple description of television: "At one end is the television camera in the studio, at the other end is the television receiver in the home—and what happens in between is a miracle." And so it still remains for most people.

The other memory is a more recent one. A teacher who had never done much television viewing, let alone seen a television studio in operation, had suddenly been catapulted (I think she'd agree with that word) into the teaching of a course on television. Just after she had finished her first television lecture, and was making her way

toward the nearest fire exit, a colleague asked her, "How did it go? How do you feel?" She looked at him, still somewhat dazed, and replied, "I feel as though I'd been lost in the fourth dimension."

The electronic miracle to which Mr. Seldes referred is outside the scope of this article, but the teacher's "fourth dimension" concept of television is very relevant. To an outsider, and particularly to an outsider who now finds himself or herself assigned to teaching via television, the new world of television—with its unfamiliar and even terrifying technical apparatus, and new approach to teaching using television techniques and production procedures—does indeed seem to have a nightmarish quality. For the purposes of this article, let us assume that each reader is a teacher and that each of you has been selected to teach a course on television. This is, in effect, your first briefing session, your first orientation prior to yourself being "cata-pulted" into the "fourth dimension."

From the standpoint of you, the potential television teacher, there are four main areas to be considered, somewhat in inverse order of the way you will meet them. First, the television studio, and its electronic equipment, second, the techniques, tools and audio-visual aids, and the specialized personnel of television production, all of which has particular pertinence to teaching method. Third, how the peculiarities and potentialities of television not only open up new vistas for teaching and learning but demand a dynamic reconstruction of the organization of subject-matter. Fourth, the attitudes and biases that you will find in yourself, your students, your colleagues and your administrators.

Television studios in educational institutions vary in construction and equipment; they run the gamut from the simplest and unexplainable use of totally-unsuitable space, with the irreducible amount of electronic and production equipment, to large-scale, expensive reconversions or outright new construction of lavish facilities, and installation of a plethora of equipment, that put many commercial stations to shame. In short, one can be confronted by a feast or a famine; but let's assume today that the studio you will work in is in the main an adequate one. As you step through the door into the television studio, you'll be struck immediately by the unmistakable fact that this is unlike any classroom you ever saw. No windows, no seats, and God save the mark, no students' eager, smiling faces. Overhead, a battery of lights, their hot rays beating down on you; at eye level, two or more television cameras staring at you with unblinking lenses, ready to convert your very being into electronic impulses and relay them piecemeal back to where the eager, smiling

faces are; on a boom, just above eye level, hanging like a ripe fruit on a tree, or perhaps instead hanging like an overlarge pendant around your neck, is a smaller microphone ready to do its own unique conversion job on the words that emerge from your tense throat and dry mouth.

You are quite convinced at this point, that this is truly no teacher's land. As you proceed with rehearsals and go on the air your conviction will be overwhelmingly reinforced. The persisting question you will be asking yourself every minute of the first hour-long eternity is, "What in God's name am *I* doing here?" You may be there because some administrator, for reasons known only to him, decided that you were the ideal person to make the first jump; or the course which you just happen to teach is the one that's wanted on television; or it's even conceivable that you in a moment of high confidence or base naïveté volunteered. No matter what the reason, you are now a television teacher and it's up to you to pull the thing off.

Well, not entirely up to you. Behind those cameras, and behind the glass wall of the control room, are technical and production personnel who are there to help you in many ways. They are not merely crutches upon whom you lean for moral support; in a much more positive way they form with you a kind of team or troupe of which you are the leader or the star. One person in particular will assume great importance in your television life, and he will be the producer-director of your course, the person responsible with you for taking you and your subject-matter and putting this combination on the screen with the greatest possible effectiveness in performance, content presentation, and teaching.

If you are moderately lucky you will have a producer-director who is fully knowledgeable of the medium of television and how it can be tellingly employed. If you are uniquely lucky you will have a person who not only has the requisite technical skills and production techniques, but who additionally—and perhaps of even greater importance in the long run—has a knowledge of, respect for, and ability to work with you in the realm of ideas, of subject-matter, of desirable educational goals, and of effective—though not necessarily conventional—educational methods. There are some educational television activities where the teacher walks into the studio five minutes before air time, places a few home-made charts on a shaky easel, nods to a button pusher mistakenly called the "director," whom he has not seen since the previous transmission hour the day or the week before, and then off they go with the teacher following his own will o' the

wisp. In some places this is not only standard operating procedure, it is also considered to be perfectly satisfactory educational television.

I had better make plain right now my own bias against such a minimal use—or gross misuse—of the known techniques and the still-unlimited potential of television as a unique communication device and medium. In some special instances, with certain teachers or with certain courses, or with certain technical or budget restrictions, it may be sufficient, desirable or necessary merely to photograph a teacher verbalizing his or her normal classroom lecture. But as a matter of communications principle and educational experimentation I am dead set against this procedure being the *standard* procedure. It is as if language had never been allowed to progress beyond a basic six-hundred word vocabulary; as if the only sentences we spoke were the four or five word simple declarative sentences we found in the pre-schoolers' books; as if the beauties of thousands upon thousands of words, of complex sentences, of meter and rhyme and rhythm, of the forms of prose, of poetry, of the drama, yes, even of song, had never been sought after and discovered or created. The other way is the easy way out; this is the hard way in.

To make *instructional television* something higher, something wider, something deeper than *televised instruction* takes primarily imagination, dedication, ingenuity, long hours, hard work—and only lastly some money. It is up to you the teacher and your producer-director to supply all these affirmative elements (it is hoped that the college and university will supply the modest amount of currency). The television expert will school you in the utilization of the technical components—for example, what a television camera and a microphone can and can't do; he will make you knowledgeable of the production uses of slide and film projectors, of visual effects and music, of pre-recorded sounds, of scenery and graphics and props, of staging, and even perhaps of corrective makeup.

For your part, as the teacher, you will begin to teach him something about your subject-matter—what the objectives of the course are, what distinguishes the main currents from the less-significant eddies, what the normal chronology of course progression is, what the routine day-by-day slicing of content into digestable classroom hours has been. In spite of what you may think now, you will find a mastery of television easier and quicker to come by for you than will the mastery of your subject-matter be for your director. In the final analysis, you are the key element, for it is upon your knowledge of your subject, your personality, your adaptability to television's needs and potentials, your effective teaching that the success of the

course depends. But while you are the key person, you obviously are not the sole person; the "do it yourself" movement may be fine for the conventional classroom method, but it won't suffice in educational television.

Earlier I referred to four main areas of consideration. We've covered so far the first two, and now we lead into the third. What do we mean when we say that "the peculiarities and potentialities of television . . . demand a dynamic reconstruction of the organization of subject-matter"? Very simply, I believe that television is a medium primarily visual and secondarily aural. Teaching is or has been the exact opposite—in practice all verbal and only infrequently incorporating much that is visual except the blackboard and the teacher's eager, smiling face. I admit that in recent years much emphasis has been placed in certain educational quarters, and in some subject-matters areas, upon a more visual approach to teaching, but traditionally and still largely true today is that subject-matter presentation has been predicated on a basis of verbalization rather than visualization. And this has either by omission or commission substantially affected the organization of subject-matter.

The usual approach in the initial attempts to do something more in educational television than merely electronically photograph a teacher speaking, is to add visual materials, such as pictures and art work, to supplement the regular classroom lecture. In some cases this helps by giving a fillip of visual variety to the jaded eye, or by making some statement more explicit or better understood. But in just as many cases this kind of augmentation can be so singularly distracting or unappropriate that it really hurts rather than helps the spoken word. The problem here is that all the points, major and minor, are made through speech and for some reason, which for the moment I shall let the psychologists and physiologists answer, the ear becomes more quickly satiated by a television lecture than by a classroom lecture, and the eye grows more quickly tired by being focussed in one direction, at one level, and on a figure frequently less than normal size.

Those of us at New York University who have taken part in closed-circuit instructional television, either as teachers or directors, have—through our own not bitter but yet rigorous experience—come to the conclusion that we must from now on use the textbooks and the teachers' normal course outlined as departure rather than arrival points. This is particularly true in the fields of the social sciences and the humanities where we are dealing so much with concepts,

abstractions, symbols, ideas, rather than immediately perceivable physical, tangible, three-dimensional material.

We know the courses' objectives, we set up the limits, the scope of the content, and from that point on embark on a long, trying, and frequently frustrating search for all those major and minor aspects of the content which lend themselves to new communicative formulations visual in nature. True, we don't always succeed, at least not completely, for part of the battle is not only with subject-matter but with ourselves—each one of us who, from childhood to death, accepts and relies upon the spoken word as the chief means of communication with other people. But those times when we do succeed, times when the visual material, or visual technique, or visual device do hit the mark, make the effort more than worthwhile. The visual element has *organically* (not tangentially) been constructed into the lessons, and the thing seen has achieved as much prominence, as much necessity as the words heard. This is our attempt to break the sound barrier, to open up new vistas of what effective teaching via television can conceivably be.

The fourth area of consideration has to do with attitudes and biases—yours, your students, your colleagues, your administrators. Except for those teachers who like the complete lecture method, or dislike students, or those egoists who revel in any off-beat prominence, most teachers may find something lacking when teaching on television. The lack is mainly emotional in origin. You miss the sanctity or refuge of your classroom where you are not in a goldfish bowl. You miss the stimulation of discussion and direct, face-to-face teaching. You miss the security of having all the elements of instruction in your own hands, in your own control at all times. You are not able, minute by minute, to gauge reaction of the class and of individual students. You miss the personal relationship with students.

Your students may like or dislike instructional television. They may have difficulty in considering television outside the context of entertainment; they therefore may find instructional television less exciting, or they may not take it seriously enough. They may feel cheated because their teacher is not with them; they may consider themselves guinea pigs and resent being experimented with. On the other hand, if you have done your job well you may find that a new interest, a new awakening is evident.

Your colleagues may have mixed reactions to television and to you. If some are self-appointed intelligentsia they probably consider all television as being outright bad, although they probably have seen little of it), and you may become intellectually suspect through a

sort of guilt by electronic association. If you achieve some measure of popularity or publicity, others may resent your good fortune; if your course is successful, you may incur the jealousy or envy of a few insecure souls; if you fail, those same insecure ones may gain much satisfaction.

And your administrators—what biases and attitudes will they have? The conservatives may be wary of the operational and budgetary problems that will arise. The old-line traditionalists may look upon television as another technological "advance" that destroys the personal quality of teaching (I sometimes sense that some of these men still view the invention of the printing press as a serious mistake). The up-and-at-them administrators may look upon television as a means of putting their schools on the map. Still others, with that God-given and man-nourished quality of curiosity about all things in life, possible and impossible, will welcome any experiment that holds promise. The promise may be one of adequate defense against the expected onslaught of greatly-increased student enrollment, or it may be one that shows a vision of significantly improved teaching and increased learning.

Well—there you have our four-pronged exploration of the "fourth dimension." I have not wanted to make it sound personally forbidding to you or academically questionable, although I am aware that some of my statements may have raised such thoughts. There are problems in instructional television, problems on all levels, and I have more than intimated that no one knows all the questions to be raised much less all the answers to be found. I believe that television in education, and teaching via television, are important matters in our professional lives. They are worthy of your deepest consideration and possible participation; one precaution though—television is not the happy hunting ground for the timid, the lethargic or the unimaginative.

Richard J. Goggin is Chairman, Department of Television, Motion Pictures and Radio, Communication Art Group, New York University.

SOME TIPS TO NEW TELEVISION TEACHERS

The introduction of televised instruction into our college curricula has meant that an increasingly large number of teachers will be required to adapt their teaching habits and procedures to a new medium.

Whenever a situation requires a shift from the familiar to the new and, hence, unfamiliar, a period of adjustment is necessary. If the new pattern is, for others, an established pattern, the adjustment period for the novice is shortened by his adoption of pre-existing norms. When there are no pre-existing norms, or when these norms exist but are not explained or available to the novice, the adjustment period is necessarily longer.

This article is intended to serve for the novice as a partial introduction to the existing norms of television. It makes no effort to systematically analyze or describe the process of teaching by television. It is, rather, a listing of a number of points, a knowledge of which might ease the first few hours of the teacher's contact with the world of television.

1. *Which is the Potter and Which is the Pot?*

Everything and everyone in the studio is there to serve you, the teacher. You are, in the most complete sense, the potter. You are in charge of what will be said, how it will be said, and how your words will be illustrated. You are the *raison d'être* for everything in the studio. Don't worry, then, about loss of autonomy. The camera transmits; it does not direct.

2. *The Distractions in the Studio*

The cameramen and other crew members in a studio wear headphones and microphones. These constitute their only link with the people in the control room. Be prepared for a constant murmur of voices while you lecture, *and ignore it*. They are discussing their problems (move the camera, change the lens, alter the lights) and not yours. Nothing is wrong and they are not disagreeing with your lecture. (In fact, they often have no time to listen to you.)

3. *Clothes Can Distract and Detract*

For men, the clothing problem is a simple one. White reflects a dark shadow. Thus, a man in a white shirt has a dark shadow on his neck and face. A light blue or tan shirt is preferable to a white one.

For women, the camera presents a somewhat greater problem. In

general, avoid busy prints, complicated jewelry, dangling earrings, shiny jewelry (it will reflect sparkling lights into the viewers' eyes). Simple lines look best on camera. White and pastels cast a dark shadow and black casts a light shadow on the neck and face. Tans, grays, dark greens, and browns all look well on camera.

4. *The Students Expect a Teacher*

Although the course uses a medium customarily reserved for entertainment, students expect to be taught, not entertained, by the television instructor. You have not entered into competition with Sid Caesar or Lucille Ball. Students see you within their framework of school and education. They are wonderfully realistic and hope only for a good course. You haven't changed your basic role, and your audience hasn't changed its expectations.

5. *Don't Play Charades*

The floor manager cannot speak to you while you are on the air. He must, instead, communicate with gestures. At the beginning of the course, ask the floor manager to teach you the accepted gestures for "slow down," "speed up," "you're on," "X minutes left," "switch to other camera."

6. *The Three-Eyed Monster*

The camera has three lenses, and all three are used at different times during the telecast. Be sure to ask the director or the camera-man how you can tell which lens is being used.

When you look directly into the camera lens, your image on the screen is looking straight into the eyes of the students. This is the only form of personal visual contact available to you, so don't be shy. Look as intently and warmly as you can into the *proper* lens.

7. *They Come to See, Not to Criticize*

The television instructor will inevitably have colleagues and guests as well as students in the audience. From the comments in the guest book at New York University and from comments made to me, I conclude that colleagues and guests generally have a "there but for the grace of God . . ." orientation. Further, they rarely if ever seem to focus on lecture content. They comment instead on picture clarity, sound level, visual aids, voice quality, poise, photogenicness. Remember, they have come to see televised instruction in action; they have not come to see or judge you as a teacher or scholar.

8. *Make Your Own Audience*

Almost all television lecturers who teach in a studentless studio

miss the live audience. But you are not alone in the studio. The crew members (cameramen, floor manager, boom man) are there and you can use them as an audience. They are busy and it is difficult to get their attention. However, if you succeed, you will have your audience, and your lectures will probably benefit by its capture.

9. *Sure You're Nervous*

Everyone is relatively tense and nervous during his first few telecasts. Some people are tense during every telecast; some get over it after a few weeks. This is true of professional television actors and of television teachers. You will be nervous at least at first. You may *always* be a little nervous. Remember that you are not different, and that most of the other nervous teachers are effective and successful.

1. *Don't Be Self-Conscious*

You are not used to staring into the eye of a camera. You aren't used to smiling, or talking with verve and expression, to no one. But don't be embarrassed. The cameramen see this all the time. In fact, everyone in the studio who sees you, expects you to be speaking with vigor to the camera and the microphone. The students see you speaking, quite naturally, to them, just as you see your favorite TV commentator speaking to you. When Ed Murrow or Ron Cochran look into your eyes and smile, it seems wholly natural to you. But they see only a camera lens, and they are smiling at and speaking to no visible audience. It's a strange feeling, but don't be self-conscious. No one in the studio thinks it odd that you should treat the camera as though it were your class. The camera *is* your class.

11. *The Race Goes Not to the Swift*

For reasons either mechanical or psychological, it is difficult to follow a lecture which is delivered rapidly. A medium rate of speed is most effective. Adjusting speed of delivery may at first be a problem to some teachers, but it is rarely a lasting problem. The new pattern soon becomes habitual.

12. *Make Haste Slowly*

The camera cannot follow rapid or unexpected movements. A sudden shift in position may result in the screen showing only a portion (and perhaps an untraditional portion) of your anatomy. Rapid hand movements may appear as blurs on the screen. Thus, all movements and changes of position should be fairly slow and deliberate. For some teachers, this too may present a problem at first. But again, it is rarely a lasting problem.

13. *Ask for an Introduction*

When you enter the studio doors, you enter a new world. In this world people are faded, lights are killed, barn doors are put up, opened and closed, scoops need adjusting, and cameras pan, tilt and dolly. It's a very interesting and exciting new world, but you won't enjoy it as fully as you could unless you ask for a formal introduction. Look through the 3 lenses of the camera, watch a lecture from the control room, ask what the words mean. Television may be confusing, distracting and perhaps even a little frightening if you do not understand what is happening. But it is fun if you know what is going on.

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